MW & BC Funded Projects
1980-81

TITLE: B-Glucan and Gasohol

INSTITUTION: Montana State University

DEPARTMENT: Chemistry

RESEARCHERS: Ken Goering

AMOUNT FUNDED: $10,900.00

OBJECTIVES:
1) Attempt to develop an economical procedure to extract B-Glucans from waxy barley using syrup process.

2) Study yields and economics of using syrup process to make gasohol.

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TITLE: Barley Breeding Research

INSTITUTION: Montana State University

DEPARTMENT: Plant & Soil Sciences

RESEARCHERS: E. A. Hockett, K. M. Gilbert

AMOUNT FUNDED: $25,000.00

OBJECTIVES:
1) Phase out in 1979-1980 pick up any loose ends.

2) Summarize and publish accumulated information.

3) Concentrate on developing higher yielding better agronomic types with waxy endosperm.

4) Grow increases for pilot tests and eventual release.

5) Continue evaluation of Beta-glucans in waxy types and effect of environment.

6) Determine effect of protein content, environment, and

variety on gluten and gluten quality in waxy varieties.

7) Complete transfer of 10 Betzes maturity types to Shabet.

8) Yield and adaptation tests of Betzes maturity types.

9) Yield and adaptation tests of large and/or plump seeded Betzes mutants.

10) Summarize and publish accumulated information from maturity studies.

11) Yield and adaptation trials of the most promising varieties.

12) Amino acid analysis (mostly lysine) of samples on hand.

13) Summarization of all data and evaluation.

14) Search out additional endosperm mutant types. Determine allelism, inheritance, and rapid methods of identifying the starchy pericarp mutants, particularly in covered types.

15) Determine the potential value of the starchy pericarp and fractured starch genes on utilization including alcohol and syrup production processes, for malting, for milling, for pearling, and for feed.

16) Develop the new genotypes: Waxy endosperm + fractured starch,waxy endosperm + starchy pericarp, fractured starch + starchy pericarp, and the waxy endosperm + fractured starch + starchy pericarp.

17) Increase and release the scald resistant Shabet.

18) Start over on a net blotch resistant Shabet.

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TITLE: Development of Practical and Economic Continuous and other Cropping Systems for Wheat Production in Montana

INSTITUTION: Montana State University

DEPARTMENT: Agricultural Research Centers

RESEARCHERS: Various

AMOUNT FUNDED: $30,000.00

OBJECTIVES:
1) Under the present system of grain culture in Montana many problems associated with the alternate and crop-fallow system indicate a needed change to new and practical methods of continuous cropping and/or other economic cropping sequences.

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TITLE: Control of soil-borne diseases of wheat and barley

INSTITUTION: Montana State University

DEPARTMENT: Plant Pathology

RESEARCHERS: D. E. Mathre

AMOUNT FUNDED: $18,953.00

OBJECTIVES:
1) To evaluate the performance of spring wheat and spring barley lines for their reaction to common root rot as measured by their tillering capacity and yielding ability.

2) To test in the greenhouse and field, systemic fungicides for their capacity to control common root rot and increase yield of spring wheat, spring barley, and winter wheat.

3) To advance another generation the materials we are developing for resistance to Cephalosporium stripe and field test them in a variety of locations with and without this disease.

4) To determine the role of Cephalosporium stripe in winter kill of certain winter wheat lines.

5) To test new seed treatment compounds and formulations for control of wheat and barley smuts and evaluate the efficacy of various seed treating equipment in applying these materials.

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TITLE: Near Infrared Reflectance (NIR) analyzer

INSTITUTION: Montana State University

DEPARTMENT: Plant & Soil Sciences

RESEARCHERS: Charles McGuire, Fern Pender

AMOUNT FUNDED: $3,000.00

OBJECTIVES:
1) Experience using the InfraAlyzer Plus tells us that protein testing is speeded 2 to 3 times over the existing Udy method. Lysine screening is 4 times faster than with the microbiological assay and with better precision and accuracy.

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TITLE: Winter Wheat Quality Relative To Fertilization With Sulfate, Chloride, Phosphate, and Nitrogen

INSTITUTION: Montana State University

DEPARTMENT: Plant & Soil Sciences

RESEARCHERS: Harold Houlton

AMOUNT FUNDED: $4,600.00

OBJECTIVES:
1) To compare the effect of K_2SO_4 and KC1 on winter wheat yield,protein, and yellow berry.

2) To determine the extent of C1 interference with nitrate uptake.

3) To resolve the effect of phosphorus on yellow berry.

4) To determine if K_2SO_4 might be a more beneficial source of potassium for dryland winter wheat.

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TITLE: Winter Wheat Improvement

INSTITUTION: Montana State University

DEPARTMENT: Plant & Soil Sciences

RESEARCHERS: Allan Taylor

AMOUNT FUNDED: $22,000.00

OBJECTIVES:
1) Final stages of evaluation of 'Cheyenne' shatter resistantbackcross derived lines.

2) General support for winter wheat breeding project.